Work Order ID 87276 July-11-12 12:54:03 PM		*872	76*						Page 1
tem ID: D4103-1 Revision ID: tem Name: Step / Handle	A	ccept	*N900	040 ⁻	100	* s	Setup Star Stop	ı, V	S1* S2*
Start Date: 7/05/12 Start Qty: 4.00 Required Date: 8/03/12 Req'd Qty: 4.00 Reference:	*4* *4*		Cust Item II Customer:	D:					
	ate:/ <i>]-07-/]-</i> ate:	Tooling: SPC (Y/N):		ite:			Run Star Stoj	" \	R1* R2*
Sequence ID/ Operation Work Center ID Description		Set Up/ Run Hours	Tool ID		Plan Code	Accept Oty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr Revision Nbr		· · · · · · · · · · · · · · · · · · ·							
D4103 A				·		•			
*100 Cut blanks as per folio. *100* Bandsaw Memo (easpa Bandsaw 6.200" long	£ ~ ` `	0.00	-A 12/12/31	tun g t	-	હ	4	-	08 08
110 *110* HAAS I Memo		0.00			-	8	<i>4</i>		08 08
HAAS CNC vertical machine #1 Mill as per dwg at DEBURR	nd Folio FA937	<u>}</u>	J.A 12/12/31	· .			·		
20 QC2- Inspect parts off machin *120* QC Memo	e FAI/FAIB	0.00	J.a 12/12/	31	-	8	4		(0)3 (0)3

Quality Control

Dart Aeı	rospace	Ltd					•	_
W/O:			W	ORK ORDER CHANGES				
DATE	STEP	PRO	OCEDURE CHA	ANGE	Ву	Date Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
		•						
Part No	•	PAR #:	Fault Cat	egory: NC	R: Yes	No DQA:	Date: _	
	Re	esolution:	Dispositi	on: Q/	A: N/C Clo	sed:	Date: _	
NCR:		\	WORK ORE	DER NON-CONFORMANC	E (NCR)	,	
DATE	CTED	Description of NC		Corrective Action Section B		Verification	Approval	Approval
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Chief Eng	QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)								
		Description of NC		Corrective Action Section B		Verification	Approval	Anneous		
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Approval Chief Eng	Approval QC Inspector		
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					1					
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Work Orde July-11-12 12:5		276		*872	276*						Page 2
Revision ID:	D4103-1 Step / Handle			Accept	*N900	<u>0401</u>	იი*	s s	etup Star Stop	i	S1* S2*
Start Date: Required Date: Reference:	7/05/12 8/03/12	Start Qty: 4.00 Req'd Qty: 4.00	*4* *4*		Cust Item II Customer:	D :					
Approvals:	Process Pla	n:	Date:	Tooling: SPC (Y/N):	Da			R	un Star Stop	171	R1* R2*
Sequence ID/ Work Center II 130 *130* QC Quality Control	• · · · · · · · · · · · · · · · · · · ·	Operation Description QC8- Inspect parts - second	and check	Set Up/ Run Hours 0.00	Tool ID	(eccept Oty	Reject Qty	Reject Number	Insp. Stamp
*140 *140 *HandFinish Hand Finishing		Chemical Conversion Co	oat per QSI005 4.1	0.00				8	Zd	\$_/3	2-1-7

150

QC3- Inspect Part Finish

0.00

150

Memo

0.00**Sm**B 13.1.7

Quality Control

Dart Aerospace Ltd

	: •					•			
W/O:		the state of the s	W	ORK ORDER CHANGI	ES				*
DATE	STEP	PRO	CEDURE CH	ANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC inspector
	·								
	,								
	·								
Part No	•	PAR #:	Fault Ca	tegory:	NCR: Yes	No DQ	A:	_ Date: _	
	R	esolution:	Disposit	ion: `	_ QA: N/C CI	osed:		Date: _	
NCR:		V	VORK OR	DER NON-CONFORMA	NCE (NCF	R)			
DATE	STEP	Description of NC Section A	Initial	Corrective Action Section Action Description	Sign 8		cation ion C	Approval Chief Eng	Approval QC Inspector
			Chief Eng	Chief Eng	Date				·
		,							
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Work Ord July-11-12 12:		276		*872	76*							Page 3
Item ID: Revision ID: Item Name:	D4103-1 Step / Handle			Accept	*N900	040	100)* s	etup	Start Stop	I V	S1* S2*
Start Date: Required Date Reference:	7/05/12 : 8/03/12	Start Qty: 4.00 Req'd Qty: 4.00	*4* *4*		Cust Item I Customer:	D:						
Approvals:	Process Pla	an:		Tooling:		nte:		R	lun	Start Stop	!/	R1* R2*
Sequence ID/ Work Center 1 160 *160* Packaging Packaging	T D	Operation Description Identify as per dwg & St Memo	ock Location 3	Set Up/ Run Hours 0.00	Tool ID	Tool#	Plan Code	Accept Qty	Reje Qty		Reject Number	Insp. Stamp

0.00

0.00

QC21- Final Inspection - Work Order Release

Memo

170

*17**0***

Quality Control

13/1/9 gg

Dart Aerospace	e Ltd
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W/O:			WC	ORK ORDER CHANG	ES				
DATE	STEP	PRO	OCEDURE CHA	NGE	Ву	Da	ite Qty	Approval Chief Eng / Prod Mgr	Approval a
			,				السندن ،	,	
Part No	•	PAR #:	Fault Cate	gory:	NCR: Ye	s No	DQA:	Date: _	·
	R	esolution:	Dispositio	n: <u>'</u>	_ QA: N/C	Closed	l:	Date: _	
NCR:			WORK ORD	ER NON-CONFORMA	NCE (NC	CR)			*
DATE	STEP	Description of NC		Corrective Action Section			erification	Approval	Approval
DAIL	01.61	Section A	Initial Chief Eng	Action Description Chief Eng	Sigr Da		Section C	Chief Eng	QC Inspector
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				Company of the Compan					

July-11-12 12:54:03 PM

Page 1

Work Order ID:

87276

Parent Item:

D4103-1

Parent Item Name:

Step / Handle

Start Date: 7/05/12

Required Date: 8/03/12

Start Qty: 4.00

Required Qty: 4.00

Comments:

IPP REV: A NEW ISSUE 10-07-01 JLM VERIFIED BY:DD

Comments:	IPP REV: A NEW	1880E 10-07-01	JLIM VI	ERIFIED BY:D	טי								
Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6B2.000X03.500		Purchased	No			100	f	15.8111	0.52	2.1894736		121	12 12 1
6061-T6 Bar 2.00 x 3.50											NJ . W	-16	14/21
				Location		Loc Oty	<u>Lo</u>	c Code					•
				MAT009		15.8111							
				1127	64	0.7284				ct			
				→ 1181	82	11.4527			3.8	3315			
•				→ 1216	60	3.63			0.4	5473			

Dait Aci	vapace	- Liu								, 1
W/O:			W	ORK ORDER CHANGI	ES			,		-
DATE	STEP	PRO	OCEDURE CH	ANGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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							•			
·					-					- :
Part No	•	PAR #:	Fault Cat	tegory:	NCF	R: Yes N	o DQ A	\ :	_ Date: _	
	R	esolution:	Dispositi	ion: <u>`</u>	_ QA:	N/C Clos	sed:		Date: _	
NCR:			WORK ORI	DER NON-CONFORMA	NCE	(NCR)		<u> </u>		
DATE	STEP	Description of NC	Initial	Corrective Action Section Action Description	on B	Sign &	Verific		Approval	Approval
		Section A	Chief Eng	Chief Eng		Date	Section	on C	Chief Eng	QC Inspector
								•		
										2
										<i>f</i> :
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DART AEROSPACE LTD	Work Order:	87276
Description: Step/Handle	Part Number:	D4103-1
Inspection Dwg: D4103 Rev: A		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Drawing	Talaranaa	Actual	Accept	Reject	Method of	Comments
Dimension	Tolerance	Dimension	Accept	Reject	Inspection	Comments
2.93	+/-0.030	2.930	>		Vern	6A-01
0.37	+/-0.030	0.370	✓		11	11
0.83	+/-0.030	0.829	>			11
Ø0.560	+/-0.010	\$0.560	V		0	1)
0.06 X 45°	+/-0.030 X +/-0.5°	6.090x45°	>		13	1)
0.26	+/-0.030	0.250	>		11	11
0.33	+/-0.030	0.376	<i>\</i>		H-6	31006
R0.06	+/-0.030	RU.063	>		R-6	ref.
1.78	+/-0.030	1.483	~		Veca	(0A-01
0.45	+/-0.030	0.436	۷	,	11	11
0.33	+/-0.030	0.336	>		4-6	31006
0.75	+0.000/-0.030	0.750)		D-6	6a-08
1.66	+/-0.030	1.644	>		Vein	6A-01
0.80	+/-0.030	U.784	>		11	- A
1.07	+/-0.030	1.076)		H-6	31006
3.85	+/-0.030	3.849)		Vern	- GA-01
0.03 X 45°	+/-0.030 X +/-0.5°	0.060x45°	>		e e	1/
0.31	+/-0.030	0.303	>	,	11	11
0.28	+/-0.030	0.277	>		1)	1)
0.030 Deep	+/-0.030	0.031	>		Ď-6	8400
6.00	+/-0.030	6.000	>		Vera	Ba-01
R0.27	+/-0.030	RO.270	>		R-6	cef.
0.56	+/-0.030	0.554	\		Velo	6A-01
1.74	+/-0.030	1. 753	V		H-6	31006
2.50	+/-0.030	2,500	V		Veca	GA-01
Ø0.438	+0.006/-0.001	\$6.441	\		/(0
Ø0.266	+0.006/-0.001	40.267	>		11	11 .
0.96	+/-0.030	0.952	V		H-6	31006
0.26	+/-0.030	0.251	/		(1	,/
0.25	+/-0.030	0.245	/		Veca	6A-0
2.25	+/-0.030	2.250	Y		17	1/
1.00	+/-0.030	1.000	~		11	. 11
0.20	+/-0.030	0.203	~		43	11
0,98	+/-0.030	0.975	~		11	· · · · · · ·
0.32	+/-0.030	0.315	~		(1	. 11
1.25	+/-0.030	1.247	~		11	()
R0.19	+/-0.030	R 0, 188	>		A+6	<i>ce.</i>
	QAS _		1	A9		

Measured by: Date: 12 12 31

Audited by: 14

Date: 13/01/04

Preliminary Approval:

Date:

Rev	Date	Change	Revised			Approved
Α	10.10.07	New Issue	KJ ¢	∜	1	ΔΔ
			,	7	<i></i>	

						·			•	,	DQA:	Date:			
NCR:	Yes	/ No				WORK ORDER NON-C	100	NFORM	MANCE / UPDATE						
											QA Closed:	Date:			
Work Ord	er:					DISPOSITION		AGAINST DEPARTMENT/PROCESS							
Part NCR	No.		,			Scrap Machin Use-as-is Thermoform			Skid-tube Crosstul Machining Small F. noforming Finishi Large Fab Composi	ab ng	ł	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other		
11011						work order opdate targe rab composite				Į	34ppe.	J LJ			
Root					Descri	ption of work order update		nitial	Action		Sign &				
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Description		Date	Verification	QC Inspector		
Doc/Data	L]												
Equip/Tooling															
Operator			ļ												
Material															
Setup									· ·						
Other						•									
Process]							·	-					
Supplier							İ								
Training	Γ]													
Unapproved]													
						F	AUL	T CATE	GORY						
Landi	ng (Gear				General		_			-		_		
		Bending				Bend	L	Grain			Ovalized		Pressure/Forced		
	L	Centre N	ot Concer	ntric to	o/s	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure		
	L	Cracks				Broken/Damaged		Inspecti	on Incomplete		Part Incorre	ct	Weld		
		Crushed/	Crimped.			Burrs		Instruct	ions Incomplete/Unclear		Part Lost/M	issing	Wrong Stock Pulled		
		Cuffs				Contamination] Mainte	enance		Part Moved		_		
		Heat Trea	at			Countersink		Mislabe	eled		Positioned Wrong				
		Inspection Strip in Tube				Cut Too Short	Г	Misread	i		Power Loss/	Surge	Other		

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

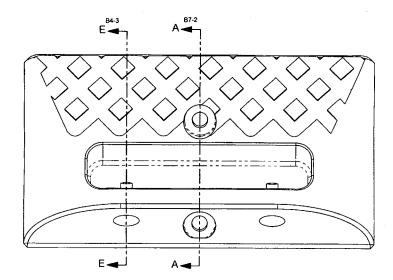
Drawing

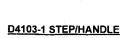
Finish

Folio

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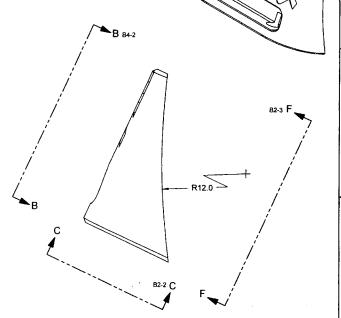
81216 pl/201-12





NOTES:
1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4103-1" USING FINE POINT PERMANENT INK MARKER 7) WEIGHT: 0.81 Ibs

8) MACHINE 0.28 x 0.31 GRIP 0.030 DEEP AT 45 PATTERN 0.25 APART



Α.	NEWISS			RF	10.05.17						
REV.	1121713	JOL	DESCRIPTION	BY	DATE						
DESIGN	V	RF	DART AEROSPACE LTD								
DRAWN	V	RF,	HAWKESBURY, ON	– – -							
CHECK	ECKED #		DRAWING NO.	· .	REV. A						
MFG. A	PPR.	94	D4103		SHEET 1 OF 3						
APPRO	VED	4	TITLE		SCALE						
DE APP	PR.	#	STEP/HANDLE		NTS						
DATE	10.0	5.17	COPYRIGHT € 2010 BY DART AEROSPACE LTD THIS DOCUMENT BY PRIMATE AND OBSTREMENTAL AND IS SUPPLED ON THE EXPRESS CONDITION THAT IT MOT TO BE USED FOR MAY PROPOSE OR DOCUMENCE TO IT ANY THEIR PERSON WITHOUT								

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NCR: Y	⁄es	/ No				WORK ORDER NON-C	CON	FORM	MANCE / UP		QA Closed:	Date	:			
Work Orde	er: .		,		<u>.</u>	DISPOSITION		AGAINST DEPARTMENT/PROCESS								
Part No					: 	Rework Scrap Use-as-is Work Order Update		Skid-tube Crosstube Machining Small Fab Thermoforming Finishing Large Fab Composite			b Prod. Eng. Coor. Quality g Rec/Store/Packaging Other					
Root Cause		Date	Step	Qty	I .	ption of work order update or Non-conformance	1	nitial ef Eng		tion ription	Sign & Date	Verification	QC Inspector			
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved													· 18//			
							AUL1	CATE	GORY							
Landi		g Gear Bending Centre Not Concentric to O/S Cracks Crushed/Crimped. Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend				General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes		Inspecti Instruct Mainte	rdware spection Incomplete structions Incomplete/Unclear aintenance slabeled sread		Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ct issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other			
	Torque Waves in Extrusion					Drawing		Out of 0	Calibration							

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

Finish

Folio

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8 0.06 x45° CAMFER-B7-3 Ø0.560 2 PL 1.66 REF - 0.33 0.25 - TYP 6.00 Ø0:438 0.80 DEEP, 2PL 2.93 R0.27 REF TYP 0.31 R0.06 TYP 0.83 0.80 2.50 0.37 -0.03 x 45* CHAMFER 1.07 0.45 0.83 REF 0.75+0.00 -0.06 x45° CAMFER VIEW B-B D3-1 SCALE 0.5X VIEW C-C SCALE 0.5X B2-1 SECTION A-A D6-1 DESIGN DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWN RF DRAWING NO. CHECKED REV. A D4103 MFG. APPR. SHEET 2 OF 3 TITLE APPROVED SCALE DE APPR. STEP/HANDLE COPYRIGHT @ 2010 BY DART AEROSPACE LTD
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NCR:	Yes	1	No
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DQA:

NCR:	Yes	/ No				V	WORK ORDER NON-C	.Or	NFORN	AANCE / UP	DATE		QA Closed:	Date:	. Show	
Vork Ord	· er·						DISPOSITION				AGAINST	DE	PARTMENT/	PROCESS		
Part					···		Rework Scrap		r	Skid-tube Crosstube Machining Small Fab				Water Jet	Engineering Quality	
NCR	No.		·				Use-as-is Work Order Update		Thermoforming Finishin Large Fab Composit				Rec/Stor	e/Packaging Supplier	Other	
Root					Desc	riptic	on of work order update		nitial	Ac	tion		Sign &			
Cause		Date	Step	Qty		or N	Non-conformance	Ch	ief Eng	Desc	cription		Date	Verification	QC Inspector	
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						ВС	OM/Route		Hardwa	re		L	Over/Under	tolerance	Temperature/Cure	
-	ding Gear Bending					Br	oken/Damaged		Inspecti	on Incomplete		L	Part Incorred	ct _	Weld	
		Crushed/0	Crimped.			Bu	ırrs		Instruct	ions Incomplete	/Unclear		Part Lost/Mi	ssing	Wrong Stock Pulled	
	anding Gear Bending Centre Not Concentric to O/ Cracks Crushed/Crimped Cuffs					Co	ontamination		Mainte	nance			Part Moved			
		Heat Trea	t		. [ountersink		Mislabe	led			Positioned V	Vrong		
		Inspection	n Strip in	Tube	Γ	Cu	ıt Too Short		Misread	I			Power Loss/	Surge	Other	
		Ripples in	Bend		ľ	Dr	rill Holes	Г	Offset			•	-	<u> </u>		
		Torque W	aves in E	xtrusio	n [Dr	rawing		Out of 0	Calibration						
-		Turning S	equence		ſ	Fir	nish	Г	Out of S	equence			****			
	<u> </u>					\neg_{Fc}	olio	Dimensions								

* R0.19 TYP R0.06 TYP 1.25 REF 0.18 REF 1.78 REF 0.98 REF Ø0.560 REF Ø0.266 2 PL **VIEW E-E** D7-1 VIEW F-F C1-1

DESIGN	RF	DART AEROSPACE LTD								
DRAWN	RĘ	HAWKESBURY, ONTARIO, CANADA								
CHECKED	#	DRAWING NO. REV. A								
MFG. APPR.	9/	D4103 SHEET 3 OF 3								
APPROVED	#	TITLE SCALE								
DE APPR.	4	STEP/HANDLE NTS								
DATE 10.0	5.17	COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PREVATE AND COMPORTINA AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOTITIOBE USED FOR ANY PRINCES OR COMED OR COMMUNICATED TO ANY POTHER PRESON WITHOUT WHITTIES PREMISSION FROM DART AEROSPACE LTD.								

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											DQA:	Date:		
NCR:	⁄es	/ No				WORK ORDER NON-C	O	NFORI	MANCE / UPDATE	,		Data	-	
,											QA Closed:	Date:		
Vork Ord	/ork Order:					DISPOSITION			AGAINST	DEP.	ARTMENT	PROCESS		
Part No.				Rework Skid-tube Cr Scrap Machining Si Use-as-is Thermoforming F						Water Jet d. Eng. Coor. e/Packaging	Engineering Quality Other			
NCR No.						Use-as-is Thermoforming Finishing Work Order Update Large Fab Composite					•	Supplier		
Root			_		Descri	iption of work order update		nitial	Action		Sign &	······································		
Cause		Date	Step	Qty		or Non-conformance 💢	Ch	ief Eng	Description		Date	Verification	QC Inspector	
oc/Data	•	·				1	Sec.	برو الله ميرو مرو الله					. %	
quip/Tooling	,						دهای استان ا		*					
perator					-					- 1				
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napproved	L		l	<u>l</u> i		F		T CATE	CORV					
Landi	200						4UL	I CAIE	GURT					
Lanui		Bending				General Bend		Grain		\Box	Ovalized	. [Pressure/Forced	
41		Centre No	nt Concer	ntric to (_{2/5} -	BOM/Route	-	Hardwa	are	⊢	Ovanzeu Over/Under	tolerance	Temperature/Cure	
		Cracks	i concer	itine to v	⁻ ⊢	Broken/Damaged	\vdash	ł	ion Incomplete		Part Incorre	· . —	Weld	
	-	Crushed/0	rimned		-	Burrs	┝		tions Incomplete/Unclear	\vdash	Part Lost/Mi	-	Wrong Stock Pulled	
		Cuffs	empeu.		<u> </u>	Contamination	\vdash	Mainte	•	$\boldsymbol{\vdash}$	Part Moved	33116		
		Heat Trea	t		—	Countersink	\vdash	Mislabe		Н	Positioned V	Vrong		
	H	Inspection		Tube		Cut Too Short	⊢	Misread		\vdash	Power Loss/		Other	
		Ripples in			<u> </u>	Drill Holes	$\overline{}$	Offset	-	'لــــ	0.1101 2033/	<u>-</u>	Journal	
		Torque W		xtrusion	,	Drawing	\vdash	1	Calibration	-				
	П	Turning Se				Finish		4	Sequence	-	-			
		Wave/Twi	•			Folio		Outside Dimensions						

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